New England Common Assessment Program

Released Items
Support Materials
2010

Grade 3
Mathematics

N&O 2.1 **Demonstrates conceptual understanding of rational numbers with respect to: whole numbers** from 0 to 199 using place value, by applying the concepts of equivalency in composing or decomposing numbers (e.g., 34 = 17 + 17; 34 = 29 + 5); and in expanded notation (e.g., 141 = 1 hundred + 4 tens + 1 one or 141 = 100 + 40 + 1) **using models, explanations, or other representations**; and **positive fractional numbers** (benchmark fractions: *a*/2, *a*/3, or *a*/4, where *a* is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area and set models where the denominator is equal to the number of parts in the whole **using models, explanations, or other representations**.

1 Amanda used pennies to show a number. She used 8 pennies and 4 groups of ten pennies. What number did Amanda show?

- ○ A. 12
- ○ B. 22
- ○ C. 48
- ○ D. 84

N&O 2.2 **Demonstrates understanding of the relative magnitude of numbers** from 0 to 199 by ordering whole numbers; by comparing whole numbers to each other or to benchmark whole numbers (10, 25, 50, 75, 100, 125, 150, or 175); by demonstrating an understanding of the relation of inequality when comparing whole numbers by using "1 more", "1 less", "10 more", "10 less", "100 more", or "100 less"; or by connecting number words and numerals to the quantities they represent using models, number lines, or explanations.

2 Three children are weighing their dogs.

- Jerry's dog weighs 36 pounds.
- Dan's dog weighs 10 more pounds than Jerry's dog.
- Sara's dog weighs the most.

How many pounds could Sara's dog weigh?

○ A. 24
○ B. 40
○ C. 46
○ D. 51

N&O 2.2 **Demonstrates understanding of the relative magnitude of numbers** from 0 to 199 by ordering whole numbers; by comparing whole numbers to each other or to benchmark whole numbers (10, 25, 50, 75, 100, 125, 150, or 175); by demonstrating an understanding of the relation of inequality when comparing whole numbers by using "1 more", "1 less", "10 more", "10 less", "100 more", or "100 less"; or by connecting number words and numerals to the quantities they represent using models, number lines, or explanations.

3 A bakery sold three types of pies. This chart shows the number of each type of pie the bakery sold.

Pies Sold

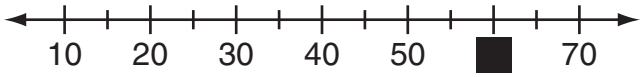
Type of Pie	Number of Pies
Apple	87
Cherry	130
Peach	109

Which list shows the types of pies in order from the **fewest** sold to the **most** sold?

- ○ A. apple, peach, cherry
- ○ B. peach, cherry, apple
- ○ C. apple, cherry, peach
- ○ D. cherry, apple, peach

N&O 2.2 **Demonstrates understanding of the relative magnitude of numbers** from 0 to 199 by ordering whole numbers; by comparing whole numbers to each other or to benchmark whole numbers (10, 25, 50, 75, 100, 125, 150, or 175); by demonstrating an understanding of the relation of inequality when comparing whole numbers by using "1 more", "1 less", "10 more", "10 less", "100 more", or "100 less"; or by connecting number words and numerals to the quantities they represent using models, number lines, or explanations.

4 Molly covered a number on the number line below with a ■.



Which number is 10 **less** than the number Molly covered with a ■?

- ○ A. 40
- ○ B. 50
- ○ C. 60
- ○ D. 70

N&O 2.3 **Demonstrates conceptual understanding of mathematical operations involving** addition and subtraction of whole numbers by solving problems involving joining actions, separating actions, part-part whole relationships, and comparison situations; and addition of multiple one-digit whole numbers.

5 Andy has 43 beads. Christine has 29 beads. How many more beads does Andy have than Christine?

- ○ A. 14
- ○ B. 15
- ○ C. 24
- ○ D. 26

N&O 2.5 **Demonstrates understanding of monetary value** by adding coins together to a value no greater than $1.99 and representing the result in dollar notation; making change from $1.00 or less, or recognizing equivalent coin representations of the same value (values up to $1.99).

6 Harrison has these coins.

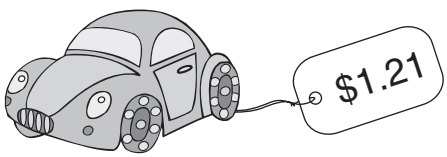
Which item could Harrison buy with these coins?

○ A.

○ B.

○ C.

○ D.



F&A 2.1 **Identifies and extends to specific cases a variety of patterns** (linear and non-numeric) represented in models, tables, or sequences by extending the pattern to the next element, or finding a missing element (e.g., 2, 4, 6, ___, 10).

7 Look at this pattern.

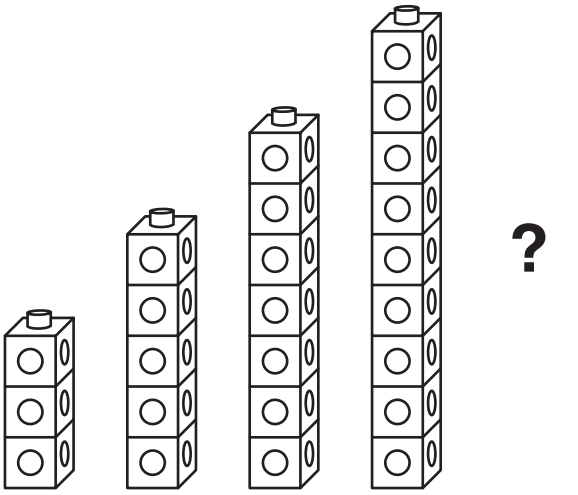
116, 118, ___?___, 122, 124

What number is missing?

- ○ A. 119
- ○ B. 120
- ○ C. 121
- ○ D. 126

F&A 2.1 **Identifies and extends to specific cases a variety of patterns** (linear and non-numeric) represented in models, tables, or sequences by extending the pattern to the next element, or finding a missing element (e.g., 2, 4, 6, ___, 10).

8 Julia used blocks to make this pattern.



Step 1 **Step 2** **Step 3** **Step 4** **Step 5**

How many blocks does Julia need for Step 5?

- ○ A. 12
- ○ B. 11
- ○ C. 9
- ○ D. 2

F&A 2.4 **Demonstrates conceptual understanding of equality** by finding the value that will make an open sentence true (e.g., 2 + □ = 7). (limited to one operation and limited to use addition or subtraction)

9 Look at this number sentence.

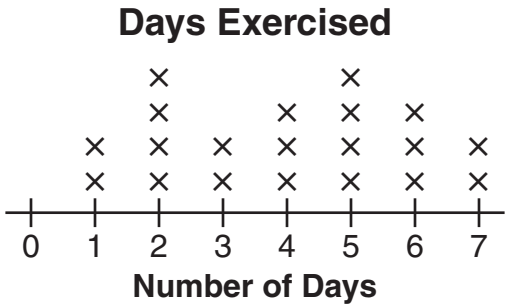
$$1 + 4 + \boxed{?} = 6 + 14$$

What number makes this number sentence true?

- ○ A. 1
- ○ B. 6
- ○ C. 15
- ○ D. 20

DSP 2.2 **Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using** more, less, or equal.

10 This line plot shows on how many days the students in Mr. Kennedy's class exercised last week.



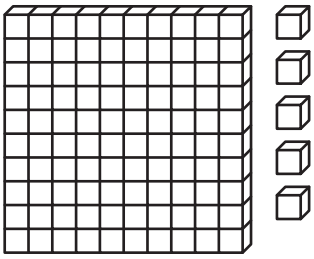
Key
× represents 1 student

How many students exercised on five or more days?

- ○ A. 3
- ○ B. 4
- ○ C. 5
- ○ D. 9

N&O 2.2 **Demonstrates understanding of the relative magnitude of numbers** from 0 to 199 by ordering whole numbers; by comparing whole numbers to each other or to benchmark whole numbers (10, 25, 50, 75, 100, 125, 150, or 175); by demonstrating an understanding of the relation of inequality when comparing whole numbers by using "1 more", "1 less", "10 more", "10 less", "100 more", or "100 less"; or by connecting number words and numerals to the quantities they represent using models, number lines, or explanations.

11 Look at these blocks.



Key
represents 1

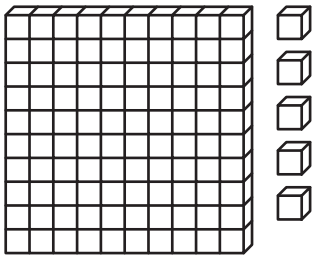
What number is 10 **less** than the number shown by these blocks?

Scoring Guide

Score	Description
1	for correct answer, **95**
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

SCORE POINT 1

11 Look at these blocks.



Key
represents 1

What number is 10 **less** than the number shown by these blocks?

95

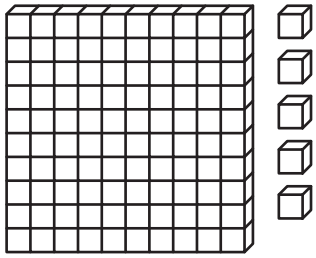
90+5=95

100-10=90

The student's response is correct.
Showing work is not required.

SCORE POINT 0

11 Look at these blocks.



Key
represents 1

What number is 10 **less** than the number shown by these blocks?

90

The student's response is incorrect.

N&O 2.5 **Demonstrates understanding of monetary value** by adding coins together to a value no greater than $1.99 and representing the result in dollar notation; making change from $1.00 or less, or recognizing equivalent coin representations of the same value (values up to $1.99).

⓬ Lucy gave Grant 36 cents. She gave him the **fewest** coins possible. Show or name the set of coins Lucy gave Grant.

Scoring Guide

Score	Description
1	for correct answer, **a quarter, a dime, and a penny**
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Score Point 1
(Example A)

12 Lucy gave Grant 36 cents. She gave him the **fewest** coins possible. Show or name the set of coins Lucy gave Grant.

The student's response is correct.

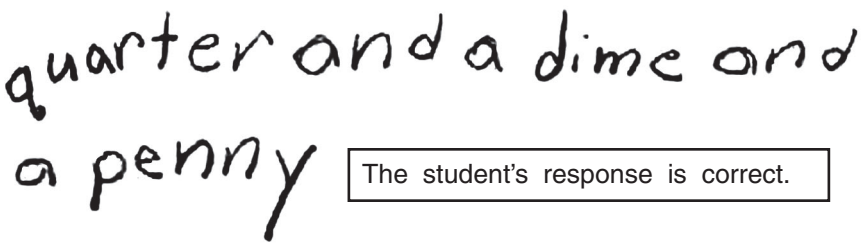
Score Point 1
(Example B)

12 Lucy gave Grant 36 cents. She gave him the **fewest** coins possible. Show or name the set of coins Lucy gave Grant.

The student's response is correct.

Score Point 1
(Example C)

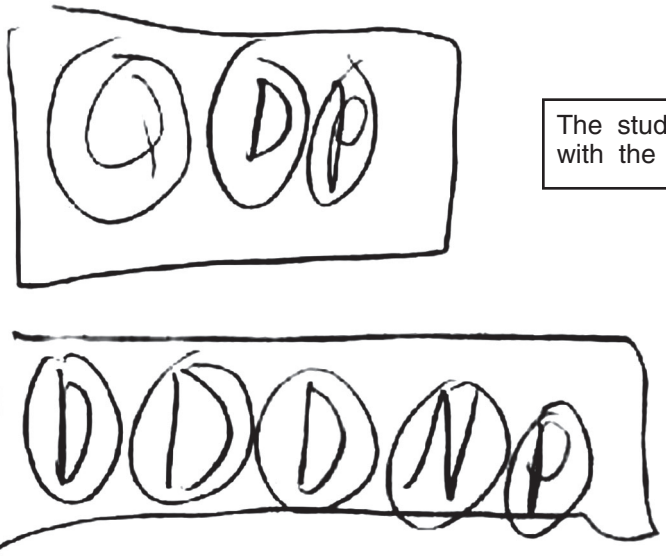
12 Lucy gave Grant 36 cents. She gave him the **fewest** coins possible. Show or name the set of coins Lucy gave Grant.



The student's response is correct.

SCORE POINT 0
(EXAMPLE A)

12 Lucy gave Grant 36 cents. She gave him the **fewest** coins possible. Show or name the set of coins Lucy gave Grant.



The student did not identify the combination with the least number of coins.

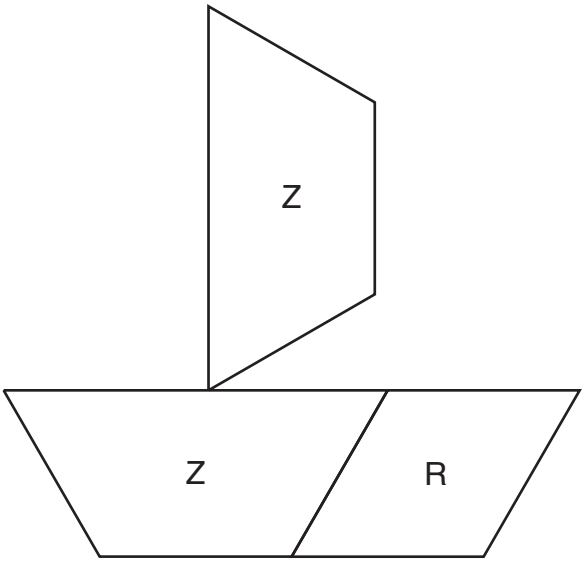
SCORE POINT 0
(EXAMPLE B)

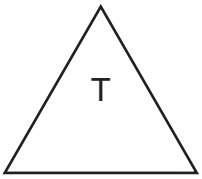
12 Lucy gave Grant 36 cents. She gave him the **fewest** coins possible. Show or name the set of coins Lucy gave Grant.

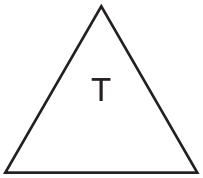
The student did not identify the combination with the least number of coins.

G&M 2.1 **Uses properties, attributes, composition, or decomposition to sort or classify** polygons or objects by a combination of two or more non-measurable or measurable attributes

13 Oliver used some shapes to make this picture.



Oliver used only  to cover this picture without any gaps or overlaps.

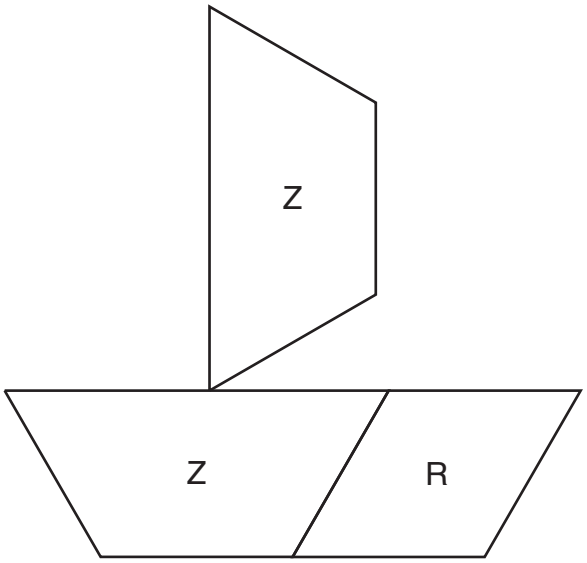
How many  did he use?

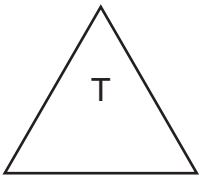
Scoring Guide

Score	Description
1	for correct answer, **8**
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

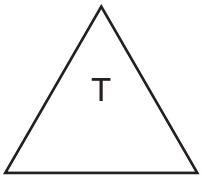
Score Point 1

13 Oliver used some shapes to make this picture.

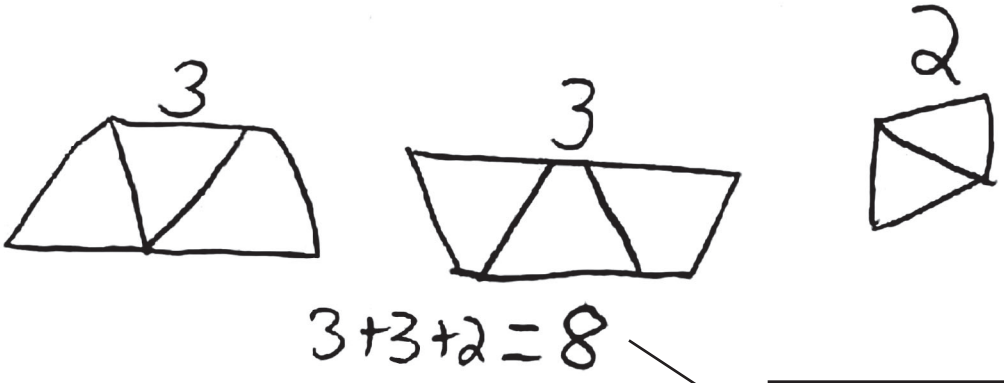


Oliver used only 

to cover this picture without any gaps or overlaps.

How many 

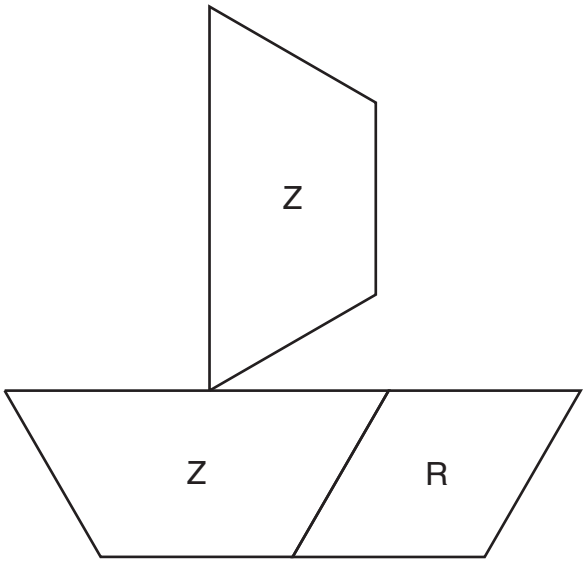
did he use?

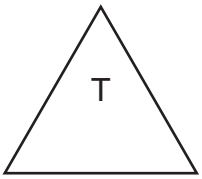


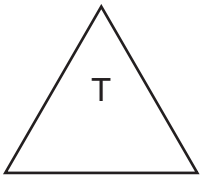
The student's answer is correct.
Showing work is not required.

SCORE POINT 0

13 Oliver used some shapes to make this picture.



Oliver used only  to cover this picture without any gaps or overlaps.

How many  did he use?

16

The student's answer is incorrect.

N&O 2.3 **Demonstrates conceptual understanding of mathematical operations involving** addition and subtraction of whole numbers by solving problems involving joining actions, separating actions, part-part whole relationships, and comparison situations; and addition of multiple one-digit whole numbers.

14 Look at this chart.

Art Club

	Grade 3	Grade 4	Grade 5	Total
Boys	4	6	5	15
Girls	9	4		

a. The total number of girls in the Art Club is 10 **more** than the total number of boys. What is the total number of girls?

b. How many **Grade 5** girls are in the Art Club?

Scoring Guide

Score	Description
2	Student has correct answer in part a, **25**, and part b, **12**.
1	Student has correct answer in part a only. OR Student has correct answer in part b only.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

SCORE POINT 2
(EXAMPLE A)

14 Look at this chart.

Art Club

	Grade 3	Grade 4	Grade 5	Total
Boys	4	6	5	15
Girls	9	4	12	25

a. The total number of girls in the Art Club is 10 **more** than the total number of boys. What is the total number of girls?

15+10=25, 25 cause

a) The student's answer is correct. Showing work is not required.

b. How many **Grade 5** girls are in the Art Club?

b) The student's answer is correct. Showing work is not required.

12 cause if you have 13 10+10= 20 and 2+3=5 so 2015=25.

SCORE POINT 2
(EXAMPLE B)

14 Look at this chart.

Art Club

	Grade 3	Grade 4	Grade 5	Total
Boys	4	6	5	15
Girls	9	4		

a. The total number of girls in the Art Club is 10 **more** than the total number of boys. What is the total number of girls?

There are 25 girls in the art club

a) The student's answer is correct.

b. How many **Grade 5** girls are in the Art Club?

There are 12 grade 5 girls in the art club

b) The student's answer is correct.

SCORE POINT 1
(EXAMPLE A)

14 Look at this chart.

a) The student's answer is incorrect.

Art Club

	Grade 3	Grade 4	Grade 5	Total
Boys	4	6	5	15
Girls	9	4	10	23

a. The total number of girls in the Art Club is 10 **more** than the total number of boys. What is the total number of girls?

b. How many **Grade 5** girls are in the Art Club?

There a 10 girls in Grade 5.

b) The student's answer is correct based on the answer to part a.

SCORE POINT 1
(EXAMPLE B)

14 Look at this chart.

Art Club

	Grade 3	Grade 4	Grade 5	Total
Boys	4	6	5	15
Girls	9	4		

a. The total number of girls in the Art Club is 10 **more** than the total number of boys. What is the total number of girls?

25

a) The student's answer is correct.

b. How many **Grade 5** girls are in the Art Club?

0

b) The student's answer is incorrect.

SCORE POINT 0

14 Look at this chart.

Art Club

	Grade 3	Grade 4	Grade 5	Total
Boys	4	6	5	15
Girls	9	4		

a. The total number of girls in the Art Club is 10 **more** than the total number of boys. What is the total number of girls?

24

a) The student's answer is incorrect.

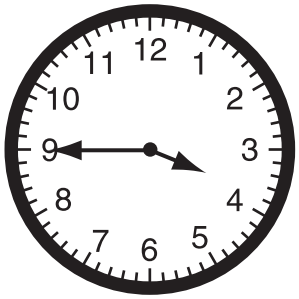
b. How many **Grade 5** girls are in the Art Club?

10

b) The student's answer is incorrect.

G&M 2.7 Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.

15 This clock shows the time Randy went to the park.



a. At what time did Randy go to the park?

Randy stayed at the park for 30 minutes.

b. At what time did Randy leave the park?

Scoring Guide

Score	Description
2	for correct answer in part a, **3:45**, and in part b, **4:15**
1	for correct answer in part a only OR for correct answer in part b only OR for correct answer in part b based on an incorrect answer in part a
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Note: Give credit to students that draw a correct clock in part b.

SCORE POINT 2
(EXAMPLE A)

15 This clock shows the time Randy went to the park.

a. At what time did Randy go to the park?

3:45

a) The student's answer is correct.

Randy stayed at the park for 30 minutes.

b. At what time did Randy leave the park?

4:15

b) The student's answer is correct.

SCORE POINT 2
(EXAMPLE B)

15 This clock shows the time Randy went to the park.

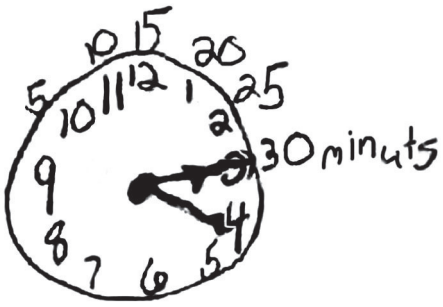
a. At what time did Randy go to the park?

3:45

a) The student's answer is correct.

Randy stayed at the park for 30 minutes.

b. At what time did Randy leave the park?

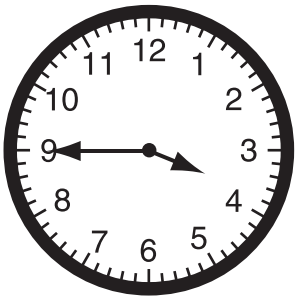


4:15

b) The student's answer is correct. Showing work is not required.

Score Point 1

15 This clock shows the time Randy went to the park.



a. At what time did Randy go to the park?

4:45

a) The student's answer is incorrect.

Randy stayed at the park for 30 minutes.

b. At what time did Randy leave the park?

5:15

b) The student's answer is correct based on the answer in part a.

SCORE POINT 0

15 This clock shows the time Randy went to the park.

a. At what time did Randy go to the park?

9:15

a) The student's answer is incorrect.

Randy stayed at the park for 30 minutes.

b. At what time did Randy leave the park?

6:30

b) The student's answer is incorrect.

DSP 2.4 **Uses counting techniques to solve problems** involving combinations using a variety of strategies (e.g., student diagrams, organized lists, tables, tree diagrams, or others); (e.g., How many ways can you make 50 cents using nickels, dimes, and quarters?)

16 Mrs. Taylor wants to buy one picture frame. These are the sizes and colors she can choose from.

Size	Color
Small	Black
Large	White

a. Show **all** the different ways Mrs. Taylor can choose one size and one color for her picture frame.

Mrs. Taylor can also choose one shape for her picture frame. These are the shapes she can choose from.

Shape
Circle
Rectangle

b. How many different ways can Mrs. Taylor choose one size, one color, and one shape for her picture frame?

Scoring Guide

Score	Description
2	Student gives the four correct combinations in part a, with no incorrect combinations, and gives the correct answer, **8**, in part b.
1	Student gives the four correct combinations in part a, with no incorrect combinations, and gives no answer or an incorrect answer in part b. OR Student gives correct answer in part b only. OR Student gives correct answer in part b based on an incorrect answer in part a.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Sample Responses:

Part a: small, black
small, white
large, black
large, white

Part b: 8
OR
s, b, c
s, b, r
s, w, c
s, w, r
l, b, c
l, b, r
l, w, c
l, w, r

Score Point 2
(Example A)

16 Mrs. Taylor wants to buy one picture frame. These are the sizes and colors she can choose from.

Size	Color
Small	Black
Large	White

a) The student's response is correct.

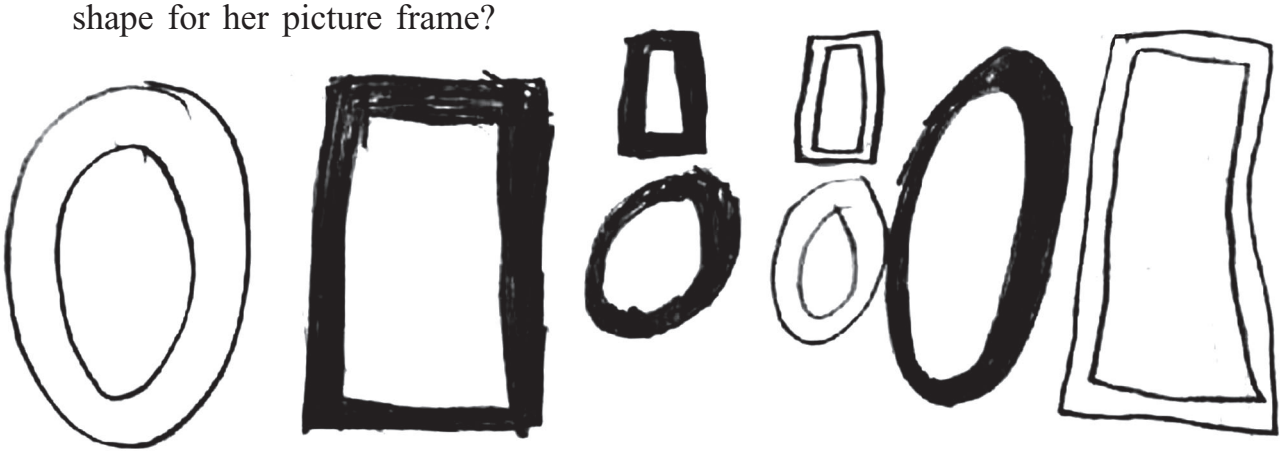
a. Show **all** the different ways Mrs. Taylor can choose one size and one color for her picture frame.

Mrs. Taylor can also choose one shape for her picture frame. These are the shapes she can choose from.

Shape
Circle
Rectangle

b) The student's response is correct.

b. How many different ways can Mrs. Taylor choose one size, one color, and one shape for her picture frame?



SCORE POINT 2
(EXAMPLE B)

16 Mrs. Taylor wants to buy one picture frame. These are the sizes and colors she can choose from.

Size	Color
Small	Black
Large	White

a. Show **all** the different ways Mrs. Taylor can choose one size and one color for her picture frame.

1. Small black
2. Small white
3. large black
4. large white

a) The student's response is correct.

Mrs. Taylor can also choose one shape for her picture frame. These are the shapes she can choose from.

Shape
Circle
Rectangle

b. How many different ways can Mrs. Taylor choose one size, one color, and one shape for her picture frame?

She can choose from 8 different ones.

b) The student's response is correct.

Score Point 1
(Example A)

16 Mrs. Taylor wants to buy one picture frame. These are the sizes and colors she can choose from.

Size	Color
Small	Black
Large	White

a. Show **all** the different ways Mrs. Taylor can choose one size and one color for her picture frame.

a) The student's response is correct.

Blackframe with a small.
white frame with a large.
Black with a Large.
White with a small

Mrs. Taylor can also choose one shape for her picture frame. These are the shapes she can choose from.

Shape
Circle
Rectangle

b. How many different ways can Mrs. Taylor choose one size, one color, and one shape for her picture frame?

b) The student's response is incomplete.

Black with small with circle.
white with small with circle.
Black with large with rectangle.
White with large with rectangle.

SCORE POINT 1
(EXAMPLE B)

16 Mrs. Taylor wants to buy one picture frame. These are the sizes and colors she can choose from.

Size	Color
Small	Black
Large	White

a. Show **all** the different ways Mrs. Taylor can choose one size and one color for her picture frame.

a) The student did not answer this part.

Mrs. Taylor can also choose one shape for her picture frame. These are the shapes she can choose from.

Shape
Circle
Rectangle

b. How many different ways can Mrs. Taylor choose one size, one color, and one shape for her picture frame?

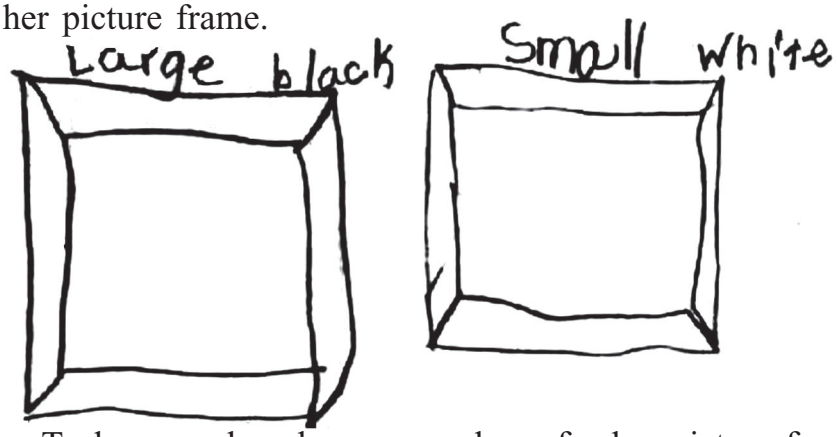
b) The student's answer is correct.

Score Point 0

16 Mrs. Taylor wants to buy one picture frame. These are the sizes and colors she can choose from.

Size	Color
Small	Black
Large	White

a. Show **all** the different ways Mrs. Taylor can choose one size and one color for her picture frame.

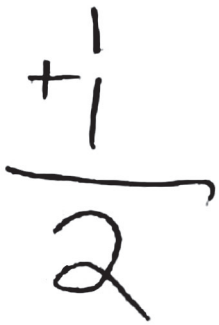


a) The student's response is incorrect.

Mrs. Taylor can also choose one shape for her picture frame. These are the shapes she can choose from.

Shape
Circle
Rectangle

b. How many different ways can Mrs. Taylor choose one size, one color, and one shape for her picture frame?



b) The student's response is incorrect.

Grade 3 Mathematics Released Item Information - 2010

Released Item Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
No Tools Allowed	✓				✓						✓	✓		✓		
Content Strand[1]	NO	NO	NO	NO	NO	NO	FA	FA	FA	DP	NO	NO	GM	NO	GM	DP
GLE Code	2-1	2-2	2-2	2-2	2-3	2-5	2-1	2-1	2-4	2-2	2-2	2-5	2-1	2-3	2-7	2-4
Depth of Knowledge Code	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2
Item Type[2]	MC	MC	MC	MC	MC	MC	MC	MC	MC	MC	SA	SA	SA	SA	SA	SA
Answer Key	C	D	A	B	A	B	B	B	C	D						
Total Possible Points	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2

[1]Content Strand: NO = Numbers & Operations, GM = Geometry & Measurement, FA = Functions & Algebra, DP = Data, Statistics, & Probability

[2]Item Type: MC = Multiple Choice, SA = Short Answer